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reach the enormous number of 1,108,600, and were made entirely by Mr. THOME and Mr. R. H. TUCKER. The area over which the observations have extended is 6075° of a great circle, hence the mean density of stars is 56.2 stars per square degree. The corresponding mean density for ARGELANDER (+90° to −2°) is 15.2, and for SCHONFELD (−2° to −23°) 18.5. The density varies considerably, however, in different parts of the sky, and ranges from 70 to 160 stars per square degree in the Milky Way. Mr. THOME says that a series of twelve maps, each embracing 2^h of Right Ascension and 20° in Declination, has been constructed upon the scale adopted by ARGELANDER, and will be issued during next year with the second volume of the catalogue, containing stars within the belt from 32° to 42° of South Declination. The construction of these maps, and the preparation of a catalogue like that of which the first part has just reached us, involves an enormous amount of labor. Indeed it is difficult to understand how, amidst the vicissitudes to which an observatory in the Argentine Republic must be subject, and with such a meagre staff as that under Mr. THOME'S direction, it has been possible to do so much excellent work."—Extract from *Nature* for August 24, 1893.

A NEW ASTRONOMICAL PERIODICAL *(Popular Astronomy).*

The following is the title page and contents of No. 1 of the new journal issued by Professor PAYNE :

POPULAR ASTRONOMY. "By the Word of the Lord were the Heavens Made." A new Astronomical Periodical, designed for Amateurs, Teachers, Students of Astronomy and popular readers. Plainly worded and untechnical in language. Amply illustrated. Issued monthly except July and September. Subscription price $2.50 in advance; for foreign subscribers 14 shillings.

Contents for September, 1893.—Frontispiece (Plate I), The Moon; Constellation Study (introductory), WINSLOW UPTON, 1; The Spectroscope and some of its Applications (illustrated), JAMES E. KEELER, 9; The Moon, WM. W. PAYNE, 16; The Asteroids and their Relation to the Planetary System, DANIEL KIRKWOOD, 19; Concerted Observation of the Aurora, M. A. VEEDER, 22; Jupiter's Comet Family (Plate II), WM. W. PAYNE, 25; Astronomy with a Small Camera, H. C. WILSON, 26; Nebula and Comet Seeking, LEWIS SWIFT, 30; A Lesson on Harvest Moon, ELIZA A. BOWEN, 32; Shooting Stars: How to Observe Them and what They Teach Us, W. F. DENNING, 34; The Face of the Sky, 38; Planet Notes, 39; Planet Tables, 40; Comet Notes, 44; General Notes, 45; Publisher's Notices, 48. WILLIAM W. PAYNE, CHARLOTTE R. WILLARD. Messrs. WM. WESLEY & SON, London, England, sole foreign agents for *Popular Astronomy.*

COMPARISON STARS TO *EUCHARIS* (181).

The stars following, used for micrometer comparison with *Eucharis* (181), were observed with the meridian circle in October, the mean epoch being 1893.79.

L. O. No. *	A. R. 1893.0.	Decl. 1893.0	S. D.	Mag.
	h. m. s.	° ′ ″		
221431	22 14 8.49	−18 0 4.1	6103	8 5
221655	22 16 32.81	−17 13 31.0	6504	8.9
221951	22 19 29.13	−16 43 52.6	6080	9.5

Each star has been given three observations, and the last one was also observed once with bright wire illumination.

R. H. TUCKER, Jr.

40-INCH REFRACTOR OF THE YERKES OBSERVATORY.

A cut of this instrument is given in the frontispiece of the present number printed from an electrotype kindly furnished by Professor PAYNE, editor of *Astronomy and Astrophysics.*

The following statistics will be of interest:

"This instrument, exhibited at the World's Fair in the center aisle of the Manufacturers and Liberal Arts Building, is the largest refracting telescope in the world. It is the gift of Mr. CHARLES T. YERKES to the University of Chicago. The column and head, of cast iron, rise to a height of 43 feet, and weigh 50 tons. The polar axis, of steel, is 15 inches in diameter, 13½ feet long, and weighs 3½ tons. The declination axis, also of steel, is 12 inches in diameter, 11½ feet long, and weighs 1½ tons. The tube is of steel, 64 feet long, and 52 inches in diameter at the center, taper-

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* See *Publications* A. S. P., Vol. II, page 307.